

# A SYSTEM AND METHOD FOR OPTIMIZING TEMPERATURE OPERATING RANGES FOR A THERMAL INKJET PRINthead

## ABSTRACT OF THE DISCLOSURE

5           The present invention is embodied in a system and method for  
optimizing the temperature operating range for a thermal inkjet printhead  
using pigmented ink over large print swaths. The printhead assembly  
includes connection and processing circuitry, a printhead body, ink channels,  
a substrate, such as a semiconductor wafer (commonly referred to as a die),  
10 a nozzle member and a barrier layer located between the wafer and nozzle  
member. The nozzle member has heating elements in arrays, as well as  
plural nozzles coupled to respective ink channels and is secured at a  
predefined location to the printhead body with a suitable adhesive layer. The  
printhead also includes a controller, which can be an integrated circuit  
15 processor, a printer driver, firmware or the like for controlling an increase in  
the mean temperature of the die through a feedback loop. The loop activates  
the heating elements and therefore increases the baseline temperature of the  
die before printing, and in turn decreases the temperature differential  
between the baseline temperature and the mean temperature of the die.

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